and the antenna gain pattern requirements in §§25.209(a) and (b). In addition, earth station licensees authorized to operate with one or more space stations described in paragraph (c)(1) of this paragraph in frequency bands shared with terrestrial wireless services shall comply with the requirements in §25.203(c).

(4) In addition to the requirements set forth in paragraph (c)(3) of this section, earth station licensees with a gain equivalent or higher than the gain of a 1.2 meter antenna operating in the 14.0–14.5 GHz band, authorized to operate with one or more space stations described in paragraph (c)(1) of this paragraph in frequency bands greater than 14.5 GHz shall be required to comply with the antenna input power density requirements set forth in §25.212(c).

(d) Applicants requesting authorization of a satellite subject to paragraphs (b) or (c) of this section must submit a narrative statement describing the debris mitigation design and operational strategies, if any, that they will use. Applicants are specifically required to submit a casualty risk assessment if planned post-mission disposal involves atmospheric re-entry of the spacecraft.

(e) In the event that the Commission adopts frequency band-specific service rules for a particular frequency band after it has granted one or more space station or earth station licenses for operations in that frequency band, those licensees will be required to come into compliance with the frequency band-specific service rules within 30 days of the effective date of those rules, unless otherwise specified by either Commission or Bureau Order.

[68 FR 51508, Aug. 27, 2003]

§§ 25.218–25.249 [Reserved]

§ 25.250 Sharing between NGSO MSS Feeder links Earth Stations in the 19.3–19.7 GHz and 29.1–29.5 GHz Bands.

(a) NGSO MSS applicants shall be licensed to operate in the 29.1–29.5 GHz band for Earth-to-space transmissions and 19.3–19.7 GHz for space-to-Earth transmissions from feeder link earth station complexes. A "feeder link earth station complex" may include up to three (3) earth station groups, with each earth station group having up to four (4) antennas, located within a radius of 75 km of a given set of geographic coordinates provided by NGSO–MSS licensees or applicants.

(b) Licensees of NGSO MSS feeder link earth stations separated by 800 km or less are required to coordinate their operations, see §25.203. The results of the coordination shall be reported to the Commission.

[61 FR 44181, Aug. 28, 1996]

§ 25.251 Special requirements for coordination.

(a) The administrative aspects of the coordination process are set forth in §101.103 of this chapter in the case of coordination of terrestrial stations with earth stations, and in §25.203 in the case of coordination of earth stations with terrestrial stations.

(b) The technical aspects of coordination are based on Appendix S7 of the International Telecommunication Union Radio Regulations and certain recommendations of the ITU Radiocommunication Sector (available at the FCC's Reference Information Center, Room CY–A257, 445 12th Street, SW., Washington, DC 20554).

[66 FR 10630, Feb. 16, 2001]

§ 25.252 Special requirements for ancillary terrestrial components operating in the 2000–2020 MHz/2180–2200 MHz bands.

(a) Applicants for an ancillary terrestrial component in these bands must demonstrate that ATC base stations shall not:

(1) Exceed an EIRP of −100.6 dBW/4 kHz for out-of-channel emissions at the edge of the MSS licensee's selected assignment.

(2) Exceed a peak EIRP of 27 dBW in 1.23 MHz.

(3) Exceed an EIRP toward the physical horizon (not to include man-made structures) of 25.5 dBW in 1.23 MHz.

(4) Be located less than 190 meters from all airport runways and aircraft stand areas, including takeoff and landing paths.

(5) Exceed an aggregate power flux density of -51.8 dBW/m^2 in a 1.23 MHz bandwidth at all airport runways and aircraft stand areas, including takeoff and landing paths and all ATC base

station antennas shall have an overhead gain suppression according to the following.

(6) Be located less than 820 meters from a U.S. Earth Station facility operating in the 2200–2290 MHz band. In its MSS ATC application, the MSS licensee should request a list of operational stations in the 2200–2290 MHz band.

(7) Exceed an EIRP in the 1559–1610 MHz band of −70 dBW/MHz for wideband emissions and −80 dBW in the 1559–1605 MHz band for narrow-band emissions (discrete emissions of less than 700 Hz bandwidth). The wideband EIRP level is to be measured using a root mean square (RMS) detector function with a resolution bandwidth of 1 MHz or equivalent and the video bandwidth is not less than the resolution bandwidth. The narrowband EIRP level is to be measured using an RMS detector function with a resolution bandwidth of 1 kHz or equivalent. The measurements are to be made over a 20 millisecond averaging period when the base station is transmitting.

(8) Use ATC base station antennas that have a gain greater than 17 dBi and must have an overhead gain suppression according to the following:

Angle from direction of maximum gain, in vertical plane, above antenna (degrees)	Antenna discrimination pattern (dB)
0	Gmax
2	Not to Exceed Gmax − 14
8 to 180	Not to Exceed Gmax − 25

Where: Gmax is the maximum gain of the base station antenna in dBi.

(b) Applicants for an ancillary terrestrial component in these bands must demonstrate that ATC mobile terminals shall:

(1) Observe a peak EIRP limit of 1.0 dBW in 1.23 MHz.

(2) Limit out-of-channel emissions at the edge of a MSS licensee's selected assignment to an EIRP density of −67 dBW/4 kHz.

(3) Not exceed an EIRP in the 1559–1610 MHz band of −70 dBW/MHz for wideband emissions and −80 dBW in the 1559–1605 MHz band for narrow-band emissions (discrete emissions of less than 700 Hz bandwidth). The wideband EIRP level is to be measured using a root mean square (RMS) detector function with a resolution bandwidth of 1 MHz or equivalent and the video bandwidth is not less than the resolution bandwidth. The narrowband EIRP level is to be measured using an RMS detector function with a resolution bandwidth of 1 kHz or equivalent. The measurements are to be made over a 20 millisecond averaging period when the mobile terminal is transmitting.

(c) For ATC operations in the 2000–2020 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency within the 2000 to 2020 MHz band outside the licensee's frequency band(s) of operations, emissions shall be attenuated by at least 43 + 10 log (P) dB.

(2) Emissions on frequencies lower than 1995 MHz and higher than 2025 MHz shall be attenuated by at least 70 + 10 log P. Emissions in the bands 1995–2000 MHz and 2020–2025 MHz shall be attenuated by at least a value as determined by linear interpolation from 70 + 10 log P at 1995 MHz or 2025 MHz, to 43 + 10 log P dB at the nearest MSS band edge at 2000 MHz or 2020 MHz respectively.

(3) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, in its discretion, require greater attenuation than specified in paragraphs (c)(1) and (2) of this section.

(4) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

NOTE TO § 25.252: The preceding rules of § 25.252 are based on cdma2000 system architecture. To the extent that a 2 GHz MSS licensee is able to demonstrate that the use of a different system architecture would produce no greater potential interference

than that produced as a result of implementing the rules of this section, an MSS licensee is permitted to apply for ATC authorization based on another system architecture.

[68 FR 33651, June 5, 2003]

§ 25.253 Special requirements for ancillary terrestrial components operating in the 1626.5–1660.5 MHz/1525–1559 MHz bands.

(a) An applicant for an ancillary terrestrial component in these bands shall:

(1) Implement the maximum available power control for all ATC base stations and mobile terminals under GSM 800 or GSM 1800 standard (dynamic range of 30 dB in steps of 2 dB).

(2) Implement a variable rate vocoder in the ATC mobile terminal such that the duty cycle of the mobile terminal is reduced when the EIRP of the mobile terminals requested by the power control system is increased above a nominal −7.4 dBW. The duty cycle will be reduced by refraining from transmitting on consecutive time slots. The duty cycle of the mobile terminal, as measured over a 0.25 second period, shall comply with the following schedule:

Nominal mobile terminal peak EIRP	Mobile terminal transmit duty cycle (percent)
Equal to or less than −7.4 dBW	100
Greater than −7.4 dBW	50
Greater than −4.4 dBW	25
Greater than −1.4 dBW	20
Greater than −0.4 dBW	18.2

(3) Implement the provisions of paragraph (a)(2) of this section in a manner that precludes other ATC mobile terminals from using the open time slots.

(4) Demonstrate, at the time of application, how the ATC network will comply with the requirements of paragraphs (a) and (b)(1) through (b)(3) of this section.

(5) Demonstrate, at the time of application, how its ATC network will comply with the requirements of footnotes US308 and US315 to the table of frequency allocations contained in §2.106 of this chapter regarding priority and preemptive access to the L-band MSS spectrum by the aeronautical mobile-satellite en-route service (AMS(R)S) and the global maritime distress and safety system (GMDSS).

(6) Demonstrate how its ATC network base stations and mobile terminals will comply with the Global Mobile Personal Communications by Satellite (GMPCS) system requirements to protect the radionavigation satellite services (RNSS) operations in the allocation above 1559 MHz.

(7) Coordinate with the terrestrial CMRS operators prior to initiating ATC transmissions when co-locating ATC base stations with terrestrial commercial mobile radio service (CMRS) base stations that make use of Global Positioning System (GPS) time-based receivers.

(8) Demonstrate that the cellular structure of the ATC network design includes 18 dB of link margin allocated to structural attenuation. If less structural attenuation is used, the maximum number of base stations permitted under paragraph (c) of this section must be reduced or a showing must be made that there would be no increase in interference to other MSS operators and that the applicant's satellite would continue to meet the other requirements of this section.

(b) ATC base stations shall not exceed an out-of-channel emissions measurement of −57.9 dBW/MHz at the edge of a MSS licensee's authorized and internationally coordinated MSS frequency assignment.

(c) The maximum number of base stations operating in the U.S. on any one 200 kHz channel shall not exceed 1725. During the first 18 months following activation for testing of the first ATC base station, the L-band ATC operator shall not implement more than 863 base stations on the same 200 kHz channel. L-band ATC operators shall notify the Commission of the date of the activation for testing of the first ATC base station and shall maintain a record of the total number of ATC base stations operating in the U.S. on any given 200 kHz of spectrum. Upon request by the Commission, L-band ATC operators shall provide this information to resolve any claim it receives from an L-band MSS operator that ATC operations are causing interference to its MSS system.